

Lifestyle

Brain and Balance Niru Prasad, MD

Our body is controlled by our brain while we sit, stand on our feet, or try to walk with a steady gait without falling. Our brain sends signals to our eyes, ears, and the sensory and motor systems to balance body. Furthermore our memory and emotions are also controlled by brain. Just about everything we do in our lives is controlled by our brain which sends signals through sensory and motor pathways. Any kind of balance issue can cause a disruption in our daily activities. This can lead to short attention span, abnormal sleep problems, fatigue, gait disorder, dizziness or loss of balance.

Balance control process

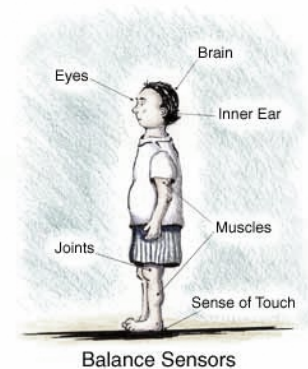
The 3 major components for balance control are:

1. Our sensory systems for accurate information about body position relative to the environment
2. Our brain's ability to process this information
3. Our muscles and joints for coordinating the movement required to maintain balance

Loss of balance control

Loss of balance control occurs when there is any pathology in the brain, eyes, and/or inner ear vestibular system as we grow older. The natural aging process produces changes in our body and brain due to poor circulation; however, a

healthy senior citizen might not have any issues. Dizziness among our seniors can be due to degenerative or infectious processes in the brain. Diseases are not the only etiologies; there are other components such as stroke, head injuries, concussions, etc. that can also affect our balance system. Various combinations of both prescription and nonprescription medications can be detrimental to our brain.



How the brain senses impulses

Our brain controls the body through connections it makes with the central nervous system. The different parts of the brain are the cerebrum, brain stem, cerebellum pons and medulla. Each of these parts has different functions that send impulses to the body.

The cerebrum is divided by a longitudinal fissure into 2 hemispheres which each contain 5 discrete lobes: the frontal, parietal temporal, occipital and insula. These lobes are hidden under the Sylvain fissure. Most of our activities require a combination of multiple areas in both hemispheres.

The different parts of the frontal lobe include motor fibers carrying impulses from each

hemisphere and cross midline in brain stem. Any damage in this area causes paralysis in the opposite side of body. The orbital frontal cortex helps modulate social behaviors. The disinhibition and abnormal behaviors in the aging population results in degenerative changes in this part of the cortex. It is very hard to describe the functions of each hemisphere so the author will include bibliography for readers.

What is plasticity? It is the ability of one area of brain to alter its function of cerebrum varying from person to person and is affected by aging process. For example if dominant hemispheric language is damaged in a child before age of 8 years the opposite hemisphere can assume the language function. The gross reorganization of brain function in adults after injury is uncommon however the plasticity remains functional in specific areas of brain throughout life.

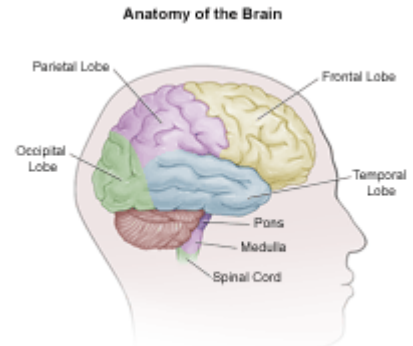
How to control your balance with daily activities

Our everyday activity depends on our mind concentration, focus on what we want to do and improving the self with proper thinking; think positive and accept life as it is.

There are modalities to accept in life to stay healthy and lead a normal life as we get older.

1. Eat a well-balanced diet with supplemental vitamins and iron
2. Exercise and practice yoga daily to improve your gait and posture
3. Do crossword puzzles to improve circulations in the brain

4. Those suffering from diabetes, hypertension, stroke, and other debilitating illnesses need help from rehabilitation centers



5. Frequent visits to your physician and be compliant with prescribed medication
6. Preventing falls at home or while walking on streets is a major issue for our seniors
7. At home the rooms should be properly lighted, remove the loose mats and any heavy object that might be hazardous
8. Check Wheel chairs frequently for any loose defects,
9. Wear comfortable shoes while walking
10. And lastly always be positive and happy!